MEBT + 4 RT CH layout based on quadrupole triplets

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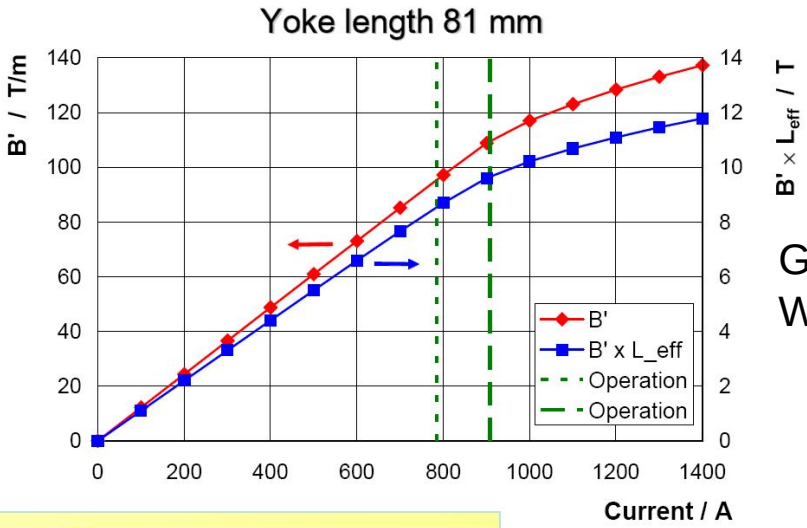
Available Quads: Length 10 cm, gap between coils 5 cm, gradient 29 T/m max,
Max current 220 A, pulsed – 3% duty factor, bore 4 cm

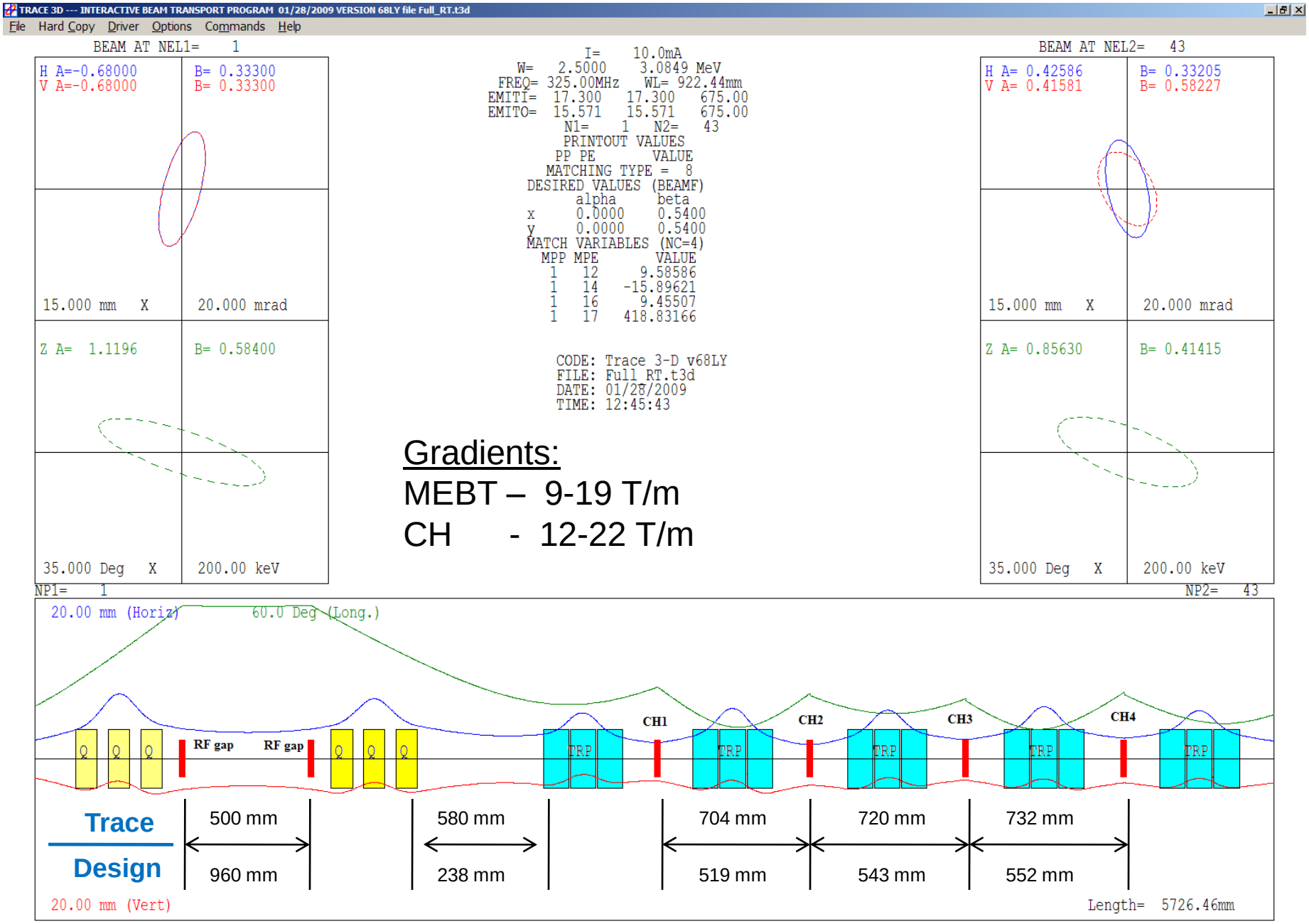
Bob Webber: The ballpark parameters we need are something like: Bore - ~4 cm maximum physical length - ~10 cm coil-to-coil and flange-to-flange gradient strength - ~20 tesla/meter integrated gradient*effective length = ~2.4 tesla



GSI quadrupole magnets. Water cooled?

Yoke outer diameter	130 mm
Yoke length	42 / 49 / 67 / 81 / 97 mm
Yoke material	VACOFLUX 50
Magnet aperture diameter	20 mm
Number of turns per pole	5

Bob's parameters have been used in simulations

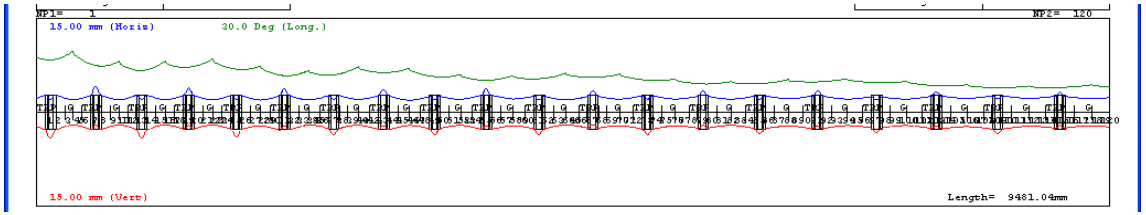


Gradients:

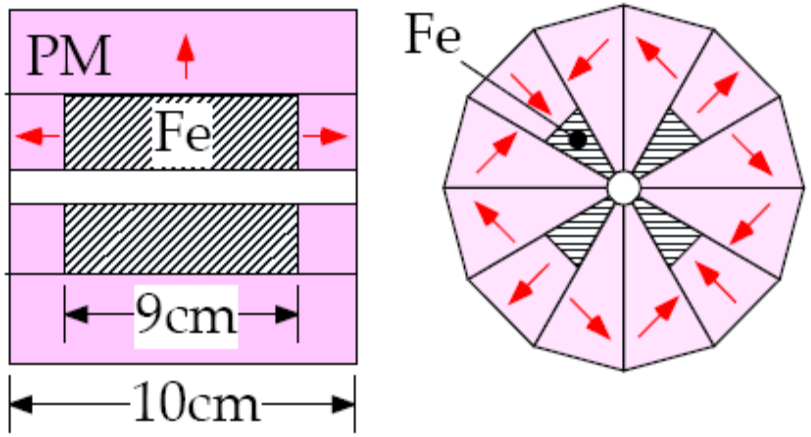
MEBT – 9-19 T/m

CH - 12-22 T/m

Reminder: PMQ option has been considered earlier



Permanent magnet quadrupole for linear collider (Japan)



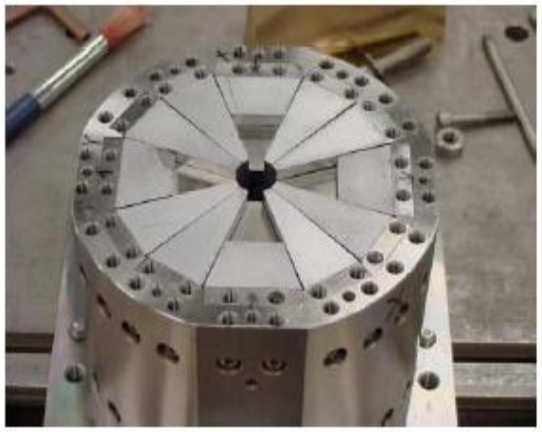


Fig. 7 The PMQ with saturated iron.

Bore 14 mm, outer diameter 100 mm, gradient 300 T/m.
A drawback is its fixed focusing strength, but some tricks have been developed to overcome the problem (Vlad.Kashihin).